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ABSTRACT

In computer-mediated communication, genres are the means through which community is established; it is through genres that students construct their knowledge and express their positions. This paper presents and illustrates an analytical method based on genre and social semiotic theory, which can be used to investigate the development of student interactions during computer-mediated communication. The theoretical framework of the method is located in an ecological model of the classroom. The project site was Illinois State University's Writing Program. The class was viewed as a field where the students' understanding of the reception and production of academic discourse develops dialogically, thus preparing the way for continued writing development as well as academic development. The ecosocial model provided for a test of whether instruction actually resulted in active development or just superficial compliance with academic demands. It is concluded that computer-mediated communication emphasizes the constitutive role of genre, displaying features of a written and spoken continuum, suggesting investigation into a new hybrid discourse. (Contains 13 references.) (AEF)

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GROWING A CULTURE: ANALYZING COMPUTER COMMUNICATION IN THE ACADEMY THROUGH GENRE

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INTRODUCTION

Synchronous computer programs such as the *Daedalus Integrated Writing Environment* are often used in universities, especially in composition classes. Although the reason for the use of computer-mediated communication has been partly the novelty of computers in classrooms, the rhetorical gains related to invention have played a major role in increasing computer writing.

Karen Burke LeFevre has outlined several tenets of a social position on invention:

- The inventing "self" is socially influenced, even socially constituted.
- One invents with language or with other symbol systems, which are socially created and shared by members of discourse communities.
- Invention builds on a foundation of knowledge accumulated from previous generations, knowledge that constitutes a social legacy of ideas, forms, and ways of thinking.
- Writers often invent by involving other people.
- Invention is powerfully influenced by social collectives.
- The reception, evaluation, and use of what is invented depend to a great extent on social context. (33-35)

Composition as a social activity, then, locates the writer in expansive social contexts. The main camp that holds to this perspective, social constructionism, focuses on the "foundation of knowledge" of discourse communities, handing down the "legacy of ideas, forms, and ways of thinking" to students. In a postmodern critique of this pedagogy, Gregory Ulmer views the classroom as an open, dynamic process, a "scene of teaching." The classroom becomes a site where students learn not only the content of the course, but also learn how to learn, how to "make knowledge" in the academy.

Current genre research furthers Ulmer's dynamic view. Carolyn Miller's ("Genres as Social Action") definition, "typified rhetorical actions based in recurrent situations" (159), and Charles Bazerman's (*Shaping Written Knowledge*) view of genre as a "social construct that regularizes communication, interaction, and relations" (62), suggest that situations that generate and sustain such dynamic forms are likely to occur in active discourse communities. It is in such communities that a genre's typical forms emerge, are used, and adapt to new demands and possibilities. Genres in this view are not simply there to be handed over as conventions.

Familiarity with the context rather than with text-types enables writers to develop the rhetorical, linguistic, and interactive strategies appropriate to specific situations. The current view of genre creates a more dynamic, contextual conception of communication.

In a related line of study, linguist Frances Christie has investigated the relationship between classroom discourse and the texts generated out of that discourse. Christie examined the patterns of interaction between teacher and children. She argues in "Writing in Schools: Generic Structures as Ways of Meaning," that the written genres produced by children reflect the patterns of interaction between adult and child in the educational setting. We can argue that it is engagement in dialogue that is the most powerful promoter of the learning and creating of genres. It is not by imitating example that we produce our genres; it is by engaging in dialogue, whether in writing or in speech. Communities form not only around the substance of knowledge, but also through the habits of knowledge production, proceeding in text, speech, or other activities.

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In computer-mediated communication, genres are the means through which community is established. It is through genres that students construct their knowledge and express their positions. Computer-mediated communication can, therefore, provide important information about the processes of genre use and development in an academic context. Through genre analysis educators can observe the quality and direction of their students' working and learning.

In this paper I shall present and illustrate an analytical method based on genre and social semiotic theory, which can be used to investigate the development of student interactions during computer-mediated communication. The theoretical framework of the method will be located in an ecological model of the classroom. Finally, the analytical method will be used on computer-mediated communication to show its value for the academy.

GENRES IN THE ACADEMY

Academic discourse has its own characteristic genres, which tend to be much the same from one discipline to another, while allowing for specialized variations in the frequency of use of different genre patterns. Within a discipline, what remains the same is thematic systems; in addition, these systems construct difference and similarity across disciplines in social roles and relationships manifested in activity structures. These two terms are related aspects of genres (Lemke *Textual Politics* 39-44). They are in principle distinguishable, but in practice they are never really separate from one another. An analogous situation would be looking at light as both wave and particle. I follow educator Jay Lemke in separating them only to look at their relations to one another.

According to Lemke, when two texts construct similar meaning relations about topics or themes, they share the same thematic system. Thematic formations are the presentation in the semantic system of disciplinary language of what is sometimes called "knowledge-of-the-world," or ideology. As genres, they are characteristic of speech communities, and they have social functions and social relations, not only to their contexts of use, but to other thematic systems as well (e.g. those which formulate the same topic in different, and perhaps opposed ways). Thus classroom discourse about the same subject could be said to have the same thematic system. On the other hand, when similarities occur between discourse activities, they exhibit the same sort of routines, or activity structures. The routines of academic discourse (including getting started, introducing topics, asking and answering questions, challenging positions, clarifying and summarizing, etc.) are all carried on according to the trajectories of past situations. Ideally, these disciplinary activity structures need to be recreated in the university classroom in order for students to participate fully in an academic learning experience.

Teaching academic subjects, then, is teaching the use of specific thematic formations within general thematic systems of discourse by means of analogous activity structures of discourse. In other words, it is the teaching of and through the valued genres. My purpose is to find new, more effective ways of teaching genres by introducing students into situations of actual professional activities through the use of computer-mediated communication, while allowing new genres to occur in the classroom.

Genre demands on student disciplinary writing are steadily increasing due to the increasing opportunities for dissemination, public discussion and criticism of such writing offered by the many new forms of computer-mediated communication. There is a growing need to frame the development of genres associated with academic writing in a context that includes such computer- mediated communication. Students in the academy will soon need to (re)interpret and (re)present their work for readers other than their teachers and other gatekeepers. They must position themselves in relationship to an academic field of critical discourse that is becoming global and electronically linked.

In summary, teachers should create situations through classroom genres in which students can "reinvent the wheel" of a genre, thus experiencing its connection to a rhetorical situation and context. In other words, by reconstituting a class as an emergent community of scholars, teachers can lead students to (re)invent various genres of academic discourse. Teachers should view the students as a unique social field producing a new professional discourse community and acquiring new genres of professional writing both explicitly and implicitly. This pedagogy would include various forms of collaboration in computer distributed environments, predominantly synchronous discussions on the *Daedalus Interchange* computer program, but also email, b-boards, and MUDs. Through interacting "on-line" students produce genres that become transformed and integrated into the genres of the academic disciplines. The computer provides an effective medium for enabling and monitoring such a transformation.

AN ECOLOGICAL MODEL

How should we factor the realities that most academic communities use specific genres into our understanding of teaching and learning processes? I propose viewing the academy through a dynamic conception of genre as an ecosocial semiotic process. To reach this synthesis, I will further Marilyn Cooper's metaphor of composition as an ecological process by integrating the social semiotic perspective of Jay Lemke.

In "The Ecology of Writing," Cooper posits a new model for writing that takes into account what she calls "the idea of dynamic, interacting systems" (1). In an ecological model, writing is an activity through which a person is continually engaged with a variety of socially constituted systems. Ecology, the science of natural environments, has been recently mentioned by writing researchers such as Greg Myers, who, in his analysis of the social construction of two biologists' proposals, concludes: "Like ethologists, we should not only observe and categorize the behavior of individuals, we should also consider the evolution of this behavior in its ecological context" (240). Cooper writes, "[an ecological model] encompasses much more than the individual writer and her immediate context. . . . [E]very individual writer is necessarily involved in [dynamic interlocking] systems: for each writer and each instance of writing one can specify the domain of ideas activated and supplemented, the purposes that stimulated the writing and that resulted from it, the interactions that took place as part of the writing, the cultural norms and textual forms that enabled and resulted from the writing. . . . The metaphor for writing suggested by the ecological model is that of a web, in which anything that affects one strand of the web vibrates throughout the whole" (6, 7, 9). With this model, Cooper extends her exploration in the direction of social semiotics.

To integrate a social semiotic, we begin from a view of social systems as systems of human cultural practices which are simultaneously material and semiotic (Bazerman *Constructing*, 38). The various things that different people in a society do are tied together in a complex web of relationships. Social semiotics suggests that social and cultural formations include the language and practices of the academic disciplines, and the ways in which new generations and communities learn and in their turn advance. Language and practice develop and adapt as an integral part of the material adaptation and development of social ecosystems. Social semiotics has valuable suggestions for teaching academic discourse. Academic discourse is not a static phenomenon; it is constantly changing as an integral part of the social activity of practicing disciplines and all the other actions in which it plays a part.

In his presentation of a social semiotic perspective, Jay Lemke invokes recent models of complex dynamic systems in the physical sciences, where development and succession are regarded as two different variations on the same process, one in which the dynamic complexity of a system matures in a partly predictable way (for a discussion of these points, see Lemke *Semiotics* pp. 25-58). An important feature of systems models is their "patchiness." A large ecosystem such as a forest is made up of local patches in close interaction. However, these patches often vary in terms of age and conditions (soil, climate, geology), following somewhat different successional trajectories. A new patch, such as a clearing created by a small fire or even the fall of an old oak, will begin to develop as the particular species, their number, and their forms of interaction gradually change. A young patch surrounded by an older patch will develop differently from one in a different situation. Each patch is an ecological subsystem integrated into the larger system.

One effect of a young patch's being part of a larger, more mature ecosystem is that it will tend to conform to the dominant system. The seeds that first land on the new patch may come from mature trees in surrounding patches. Some of these may flourish, but others may require intermediate species that modify the soil or light conditions in a way that favors them. Ecosystem theorist C. S. Holling argues that successional trajectories are a mixture of the stages leading to a "climax forest" and various local "short-cuts" based on the fact that later-stage systems already exist nearby. Hollings, in "The Resilience of Terrestrial Ecosystems," concludes that different patches will pursue slightly individual trajectories while still tending to a common balance with surrounding communities.

Human community patchiness ranges in scale down to the individual organism, whose development as a member of a social group is an integral part of the history of the group and the larger communities of which it is in turn a part. Learning is an essentially social process, taking place in communities, through social interaction. Aviva Freedman writes, "all learning is necessarily situated within a community of practice in which learners are enabled to perform by an intricately orchestrated process of coparticipation with old-time members" (275). What is transmitted are social systems of practices and their meanings (languages, genres, discourses, activity norms and procedures) that are characteristic of social communities.

To translate this ecosocial perspective into the computer classroom, I want to view students as a small patch in the human social ecosystem. They are a relatively "immature" patch, developing in ways partly unique to their group, and partly convergent with those of like groups in the larger community of the academy. They share a dialect of language with the larger community, but their own genres will remain local and idiosyncratic to the group. They develop their own ways of talking about academic subjects, under the influence of the more mature systems around them, through active interaction with teachers, parents, mass media, and slightly older individuals. Some of what they do which is unique may eventually be copied and become the norm for a larger community of the future.

In my research I also shifted focus from individual organisms (students) to the actual processes that constitute their sub-ecosystem (communities), a move that Cooper and Lemke advocate. The relationships that define an ecosystem are between processes, not individuals. Communities likewise are not system of individuals, but systems of organizing social practices (Cooper 13). It is these practices that develop and adapt, or more precisely, it is the developmental trajectory of a system of interrelated practices which adapt, and the material practices which support those practices that develop.

The material practices of the community were developed through the use of *the Daedalus Integrated Writing Environment* computer software. The operations and modality of the software provide an initial explanation of the value of the computer-mediated interchanges. At the level of operations, to communicate something to other people in the *Daedalus* writing environment, one types:

> this is an interchange!!

which results in a message being sent to all in the form:

> Meshak: this is an interchange!!

where Meshak is one's personal pseudonym, chosen when entering the *Daedalus* environment. The computer posts the messages in the order it receives them.

When we consider the mode of the interchange, we find that this group conversation is taking place by means of a written rather than a spoken code. The interchange context, then, involves an intermodal practice of electronic literacy. One characteristic of this intermodal context is that participants use an abbreviated form of writing that seems closer to spoken language than to written language, as evidenced by the initial exchange:

> Jeff: when is lunch?
> Frank: hi, how ya all doing
> zzz: fun stuff huh
> Jeanne: why

Conventions of formal written syntax are transformed in the material practices of the computer context.

Another characteristic of intermodality is that certain instances of direct person to person communication (so-called "whispering") become indexed by means of an inclusion of the recipient's name in the message. The Kim-Thomas interchange on the impact of tv is one example of this.

> Thomas: I went to a small public school in a small rural town. I never watched TV though, since I lived in the country and we only received about 3 channels. I think that TV is a ruining force in today's youth!
>
> Kim: to thomas: i think there's a lot more factors that go into what you call a "ruining force" in youth.
>
> Thomas: Kim, what other factors are you talking about?

From these examples we can begin to define a mode distinction that negotiates between the oral and written.

ANALYSIS OF A COMPUTER-MEDIATED INTERCHANGE

The project site was Illinois State University's Writing Program. The students studied were in the second semester academic writing course. The class was viewed as a field where the students' understanding of the reception and production of academic discourse develops dialogically, thus preparing the way for continued writing development as well as academic development.

The course linked three common threads: reading activities, dialogue (written and spoken) about readings, and formal writing assignments. The reading assignments were designed to introduce students to an awareness and understanding of dialogics and functional stylistics and their own involvement in these processes. The texts read by the students over the course of the semester were from two sources: *Dialogism: Bakhtin and his World*, by Michael Holquist, and sources selected by the students (in the form of research materials and journal forums). The book provides an overview of the Bakhtin circle's impact on several fields of inquiry, including physics, psychology, and literature. I had students explore their academic discipline for complex spoken and written genres (such as syllabi, classroom discourse, articles, essays, manuals, and handbooks).

Within the interchanges of the first two units of the course, I looked at the way activity structures and a thematic system produced a particular ecosocial system characteristic of the group. The computer interchange was a material site for student discussion of the thematic system of the unit topic through the activity structures of the academy.

(The complete analyses and transcripts can be found at http://www.dsu.edu/~haasm/tcc/append.html)

GENESIS OF A STUDENT PATCH

At the outset of the unit students read a chapter entitled "Existence as Dialogue," which summarized Bakhtin's theories of linguistic subjectivity. They responded to my lecture on the material through class discussion in which questions were raised about cognition and language. Then, students participated in a computer interchange about the topic.

The students came to class and I asked them to log into the *Daedalus Integrated Writing Environment*. The computer program showed the following prompt for the interchange.

> Having thought and perhaps written about the social systems that have interconnected into what is 'you,' can you see any advantages that you've experienced in this formation? Might you also have disadvantages? What determines the difference in your interpretation?

I had asked the students to do some preliminary thinking and writing about the discursive influences in their lives in preparation for the interchange.

My hypothesis was that students would create an ecosocial system through genres, as seen in the activity structures. My general conclusion is that different motivations generated different ways of using genres and communicating through them. When the students were faced with a specific communicative situation, viewed in terms of purpose, audience, medium, and systemic function, they responded in ways consistent with their personal repertoire of genres learned through experience. In its genesis, then, the ecosystem produced by the utterances of the students was dynamically formed, mediational, goal-directed, and intertextually structured.

My first finding was that the students brought various initial genres into the discussion. When students made their first posting on task, they used the genres of defining, narrating, abstracting, interpreting, evaluating, eliciting, and testing. These genres, each with its own purpose, was a response to the prompt. Students drew on their repertoire of speech genres, putting forth activities that they hoped would direct the discussion. However, all the genres did not receive a response nor were all used again; indeed, only a few were reified. Those that did succeed (eliciting, interpreting, evaluating, and hypothesizing) were those that furthered the discussion toward the goal of the assignment.

The various participants entered the situation of utterance with quite different histories and degrees of knowledge about the genre conceptions, activity structures, and the interpersonal roles of the interchange text they were producing. They negotiated the activity of the interchange, developing and adapting the activity structures for increasingly complex purposes as the interchange progressed.

A second finding was that several simultaneous conversational threads were going on. Conversation in the *Daedalus* environment was not only linear, it was also spatial. Students did not follow one line of conversation, but wandered down several paths. Such a phenomenon often raises questions about the coherence of the interchange. However, the first interchange did have a general direction. Threads wound around one another, with students entering and leaving discussions as they picked up on topics which led to other topics which overlapped with another topic. The resulting dialogue could be pictured as a web. So rather than having a typical class discussion which allowed one speaker and topic at a time, the interchange allowed multiple conversations and topics.

The third finding was that the activities moved students from cooperative to competitive roles. After students had entered the discussion with their initial statements, the most productive activity was the relating of memories that had a connection with several students. This finding indicates that students desired to find common ground, to make connections initially. There are at least two possible reasons for this initial cooperation. The use of the descriptive genre of narrating personal stories and listing influences is a frequent activity in student discussions. On the other hand, students might have wanted to find out about each other in order to become more comfortable in the situation.

The shift to the competitive genres of interpretation and debate occurred after the cooperative genres had run their course. Having established a "community," the students were able to question and challenge one another without discomfort. However, it could also be that the students were more prepared to use the competitive genres when one student initiated such an activity. One such shift from cooperative to competitive genres showed a student using both genres as the interchange proceeded. Because the cooperative genres were used before the competitive genres, the intention of the argument and interpretation was "exploration," not "victory." Therefore, the community was not challenged from within, but strengthened by the competition.

The fourth finding concerns computer-mediated communication as a mediational tool. Indeed, the interchange with its multiple threads of discourse provided an intertextual space of community discourse. The interchange became a site for the actualization of the dialogic theory that I was teaching. One student's genre of hypothesis testing and the discussion by several others of the "party" atmosphere of the interchange indicates that students are willing and able to step back from their situation and engage in self-reflection and critique.

Fifth, in the interchange's trajectory, complex genres developed from the simple genres. Two students combined genres when they made longer posts that brought declarative statements in conjunction with questions. In addition, student used the descriptive genre to support an interpretive statement, indicating an increase in the complexity of speech genres. Finally, several students introduced testing a hypothesis of explanation, which raised the genres to another level of complexity. The appropriateness of recognizing genres as large as texts as an adequate unit of analysis suggests that their role goes beyond the mere mediation between individuals engaged in communicative events.

THE DEVELOPMENT OF A STUDENT PATCH

The second unit started with students reading a chapter in Holquist about Bakhtin's speech genre theory, which included discussions of primary and secondary genres. I went over the material in class, predominantly lecturing on the thematic system that Bakhtin had elaborated in several of his writings.

When the students came to class, I gave them this assignment for the formal paper:

> For this paper, I'd like you to analyze the discourse of both your and your classmates' first papers. Can you see the speech genres that converge and dialogue in the discourse of your peers? I would like you to consider not what is viewed as an influence, but how the influences are presented and discussed in utterances. It might be easier to delineate the speech genres of others first, because we are so involved in our own discourse (since our very thoughts are made up by speech genres) that we cannot step back and reflect on ourselves.

There were three interchanges on genre, of which I analyzed two, because I divided the class into groups to alleviate the "party" atmosphere commented on in the first interchange.

My hypothesis was that the student patches developed genres in response to situations. The discourse of the genre interchanges showed two processes of building thematic relations with two different results. Conference A became caught in a recursive activity of narration without analytical intent, while conference

B developed both activity structures and thematic systems through exposition. By providing an opportunity for this constructive development of thematic systems in the classroom, the interchange promoted student responsibility. I conclude that many students were not accustomed to hearing and using the indirect strategies of thematic development as evidenced by their cautious postings in the form of questions. Students need to experience more situations in which the formation of thematic systems is implicitly developed by themselves, rather than explicitly passed down from above.

Much as in the first interchange, the genre system of both conferences was goal-directed communication. In conference A several activities were attempted, with one stagnating, one getting overlooked, and one receiving response and reification. Students followed the activity that they believed provided the thematic system needed for the task. Similarly, the students of conference B attempted several activities, with one setting the stage, one providing the needed activity for the group's system development, and one setting up roles of inquisition.

However, the interchanges differed in their subsequent development of genres. In interchange A, students did not seem to have derived a framework for the general activity from past experience, and floundered to find one for this context. They utilized the genres of naming, listing, defining and narrating. On the other hand, the interchange B students constructed a framework for analysis similar to the hypothesis testing used in the first interchange. The genres used included naming, summarizing, classifying, and positioning.

In my postings I attempted to scaffold and confront the academic genres that were lacking or were ineffectual. I scaffolded the genre of classifying and confronted the genre of listing for conference A. The result was that the students overlooked classifying in favor of defining and narrating. Also, they used listing, but more for content than form. After I confronted their listing genre, the lists remained random, having no necessary order. My mediation was ineffective in this conference.

For conference B, I scaffolded genres of support and cause/effect and confronted classifying and listing. They picked up on the support genre, while the cause/effect genre was overlooked. When confronted, their classifying became more complex, giving listing a sense of relationship between items. My mediation was partially successful here.

As a result of the interactions with me and within the groups, the conferences developed differently. For conference A, there was no development. Students remained in the genres they initially used, with any attempt at development ending up in stagnation. In contrast, conference B combined primary genres into secondary genres. The most profound instance was when listing became categorizing of definitions. The students realized, both in the content of their discussion as well as in the form, a development of genres from simple to complex.

A probable key to the differences was the difference in the roles of students in the student-student interaction. In interchange A, students did not take a leadership role, and so ended up in the role of questioner. The students were not comfortable or confident in making statements about genres; in fact, they always hedged their comments cautiously. The students in the group were all English majors, with interests and backgrounds in literary studies. They seemed unfamiliar with analytical genres, preferring narration. The result was that student development stagnated as they went off task and continued to look to the teacher in IRE fashion.

The students in conference B set up interviewing roles with one student asking questions of the others. This relationship allowed the other students to report their findings in a way that promoted continued probing and investigation. Perhaps because this student was a former science major he was familiar with analytical genres and felt comfortable in the role of inquirer. The result of their roles was that students flourished in analysis and ended up in cooperative/competitive roles that furthered discussion.

IMPLICATIONS OF THE STUDY

The ecosocial model provided me with a test of whether instruction actually resulted in active development or just superficial compliance with academic demands. I conclude that students did (re)produce the genres of the classroom. The different patches did take different paths and came to different conclusions. If all the students "mastered the curriculum" with no diversity, this would not indicate "learning" as intellectual development. Real thinking by real people leads to real differences in conclusions. Thus, the model has much to recommend itself in analyzing genre development not just as a process by which the individual learns from the social and material environment, but as a unique process of individual and group change that contributes to social and material development.

Contemplating the material processes of the context, I conclude that computer-mediated communication emphasizes the constitutive role of genre, displaying features of a written and spoken continuum, suggesting investigation into a new hybrid discourse. The genres of the developing patch in a distributed virtual environment are in many ways unique. As I have started to do, researchers can tap the ongoing adaptation and creation of activity structures and thematic systems as they occur in such contexts.

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